

Trend Study 15-7-99

Study site name: Airplane Spring.

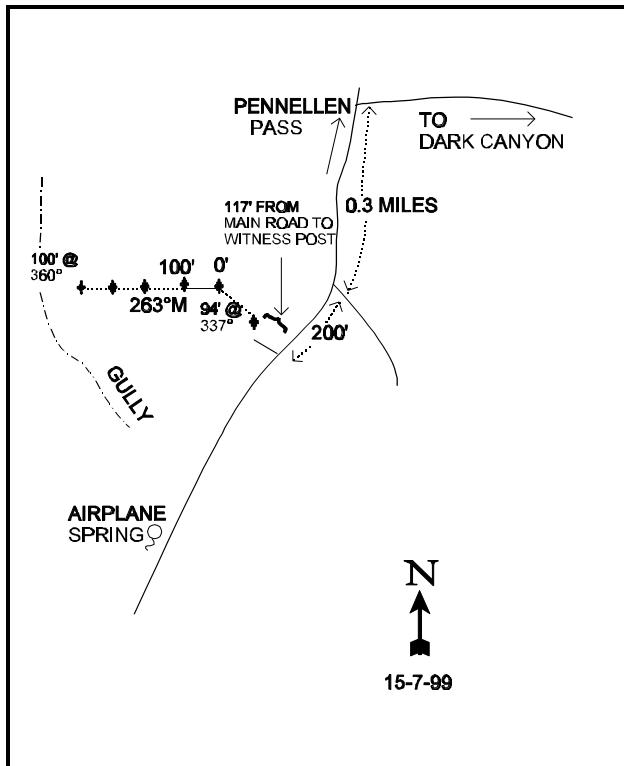
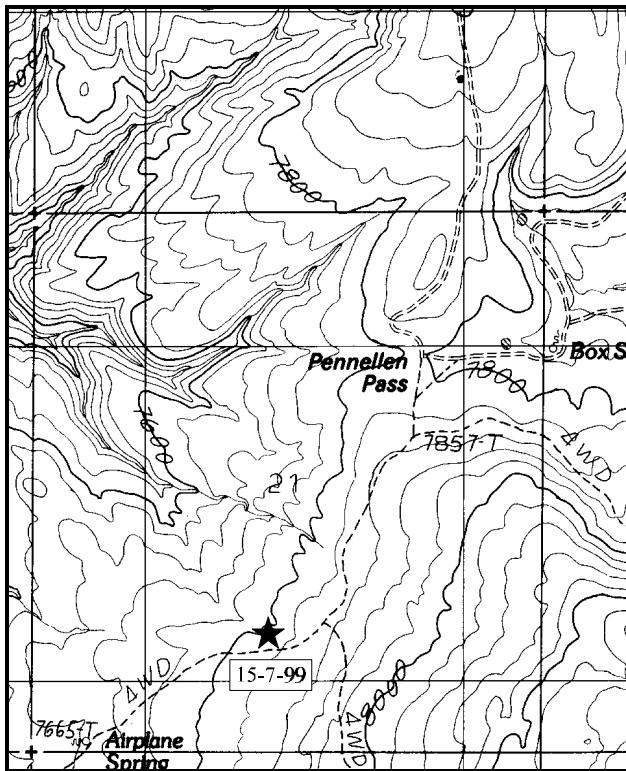
Range type: Chained, Seeded P-J.

Compass bearing: frequency baseline 263°M.

Footmark (first frame placement) 5 feet, footmarks (frequency belts) line 1 (11 & 95ft), line 2 (34ft), line 3 (59ft), line 4 (71ft).

LOCATION DESCRIPTION

From Birch Spring (T32S, R10E, Sec. 6), travel southwest for 5.1 miles. Turn right, go 1.9 miles past Box Springs to a major intersection at Pennellen Pass. Bear right, and go 0.4 miles to another intersection. Bear right towards Airplane Spring, but go only about 0.05 miles (200 feet) to a pullout on the right. A witness post is located 117 feet off the road. The first baseline stake is 94 feet northwest of the witness post. The transect stakes are 2-foot tall fence posts, the first one is marked with browse tag #7174.



Map Name: Mount Ellen

Township 32S, Range 10E, Section 21

Diagrammatic Sketch

UTM 4206189.450 N, 516486.643 E

DISCUSSION

Trend Study No. 15-7(38-7)

The Airplane Springs study site is located within the Airplane Springs chaining at an elevation of 7,700 feet. The slope is variable over the site, ranging from 11-18%. The aspect is west to southwest. Precipitation is similar to that received at the Box Spring chaining (#15-6), which is an extension of the Airplane Springs chaining. This project was completed during the mid-1960's with some of the surviving trees now up to 10 feet in height. 1999 point quarter estimates the density of pinyon at 80 trees/acre with an average basal diameter of nearly 4 inches. Juniper density is estimated at 60 trees/acre with a basal diameter of nearly 4 inches. Both species combined have a canopy cover of 8% in 1999.

This portion of the chaining is in the Pennell Allotment and is a key area for buffalo and deer. The nearest water source is Airplane Spring which is one-half mile from the site. The study site is within a few hundred feet of the road that links Airplane Springs with Box Springs. Use of the road would be expected to be light except during the hunting seasons. During the 1994 reading, pellet group data indicated a high proportion of rabbit pellet groups compared to that of deer. Rabbit pellets were also high in 1999 with 84% of the 50 circular plots (100ft²) with pellet groups. Use from wildlife is currently low with 4 deer days use/acre (10 ddu/ha) estimated in 1999, and only 1 buffalo days use/acre (2 bdu/ha). Livestock use is moderate with an estimated 20 cow days use/acre (49 cdu/ha) in 1999.

The soil is a reddish brown, clay loam with a neutral pH (7.0). The site is very rocky both on the soil surface and throughout the profile. Soil depth is moderately shallow due to the rockiness of the site, with an effective rooting depth estimated at just over 11 inches. Currently, erosion is minimal due to extreme rockiness and lack of soil on the surface. However, accumulation of soils on the lower end of the slope from the rocky slopes uphill shows that erosion has occurred in the past. Some areas have fairly good litter cover and an organic matter accumulation in the surface horizon, especially beneath the shrubs.

The study is near the edge of the chaining and approaching the ecotone between the pinyon-juniper and mountain brush types resulting in a diverse mix of browse. However, the majority of the species are found infrequently. Species which characterize the mountain brush type that occur in the chaining are Gambel oak, true mountain mahogany, Utah serviceberry, and snowberry. The cover and browse provided by the adjacent mountain brush type coupled with the herbaceous forage and browse of the chained area contribute to making this area ideal habitat for mule deer. The majority of the most preferred shrubs showed signs of moderate to heavy hedging since the 1987 reading. Black sagebrush is the most abundant shrub on the site, with an estimated 1,665 plants/acre in 1987, 3,520 in 1994, and 5,100 by 1999. Some of the increase may be the result of the larger sample size taken in 1994. However, the change from 1994 to 1999 was from large increases in percent young and mature plants. Biotic potential (107%) is also very high with the number of seedlings sampled in 1999 increasing to 5,440 plants/acre, up from 3,400 plants in 1994. Due to the present age class distribution, this species appears to continue expanding. Use remains light and vigor is good for the majority of the population with abundant seed heads present from last year.

Serviceberry and mountain mahogany are also important preferred browse on the site. All were heavily utilized in 1987, but use has moderated with an increase in density for both species. Mahogany plants are knee to waist high due to the heavy use received in the past. Serviceberry plants are large statured with some being 6 to 8 feet in height. Broom snakeweed is present at the site, but the density is quite low for this species with an estimated 1,000 plants/acre in 1999. Bitterbrush is present, but only one plant was sampled in both 1994 and 1999.

The most abundant grasses on the site are seeded species. Crested wheatgrass nested frequency decreased between 1987 and 1994, but increased again in 1999. It currently provides 95% of the grass cover and 48% of the total vegetative cover on the site. Intermediate wheatgrass continues to decrease since 1987 with a nested

frequency value of 28 and a quadrat frequency of only 12. This would be expected with continuing drought. Both species were only lightly utilized in 1999. Native grasses have practically disappeared from the understory with a sum of nested frequency for all species together of only 21 in 1999. Forbs in the understory are diverse, but infrequent providing only 4% of the vegetative cover in 1999. The key species, alfalfa, was numerous in 1987, but like at other sites, this species has declined significantly during the drought. Alfalfa was heavily utilized prior to July 1987, but still appeared vigorous. In 1999, alfalfa showed moderate to heavy use, some used down to the ground.

1994 TREND ASSESSMENT

Ground cover characteristics are similar to those of 1987. The abundant herbaceous vegetative cover, combined with the gently slope prevent erosion. Trend for soil is stable. Key browse on the site consist of black sagebrush, serviceberry, mountain mahogany, bitterbrush, and snowberry. All have increased in density, show low rates of decadency, and are less heavily utilized than they were in 1987. Trend for browse is up. Herbaceous plants appear to be declining on this site perhaps due to the increased dominance of shrubs and trees in conjunction with extended drought. Sum of nested frequencies of perennial grasses and forbs have declined by 31% indicating a downward trend.

TREND ASSESSMENT

soil - stable

browse - up

herbaceous understory - down

1999 TREND ASSESSMENT

Soils show a stable trend. The proportion of protective ground cover (vegetation and litter) to bare ground slightly increased from 1994 to 1999. Erosion continues to be minimal due to the abundance of rock and herbaceous cover. Trend for browse is improving. The key species black sagebrush, serviceberry, and true mountain mahogany provide half of the browse cover. Densities for all these species are stable or increasing, vigor is improving, and percent decadency is low. Herbaceous understory trend is stable. The key species, crested wheatgrass, increased in nested frequency and cover. Sum of nested frequency for all perennial grasses combined slightly declined, but nested frequency for perennial forbs slightly increased. Annuals are almost non-existent in the understory.

TREND ASSESSMENT

soil- stable

browse- up

herbaceous understory- stable

HERBACEOUS TRENDS --

Herd unit 15 , Study no: 7

T y p e	Species	Nested Frequency			Quadrat Frequency			Average Cover %	
		'87	'94	'99	'87	'94	'99	'94	'99
G	Agropyron cristatum	b306	a234	ab264	94	76	84	11.67	19.07
G	Agropyron intermedium	c122	b58	a28	46	24	12	1.04	.64
G	Bouteloua gracilis	1	5	-	1	2	-	.01	-
G	Bromus tectorum (a)	-	6	-	-	2	-	.01	-
G	Festuca ovina	a2	a-	b8	2	-	5	-	.24
G	Oryzopsis hymenoides	-	-	2	-	-	2	-	.03
G	Poa fendleriana	a-	c19	b10	-	10	4	.15	.10
G	Sitanion hystrix	c73	b28	a1	37	11	1	.15	.01
Total for Annual Grasses		0	6	0	0	2	0	0.00	0
Total for Perennial Grasses		504	344	313	180	123	108	13.03	20.11
Total for Grasses		504	350	313	180	125	108	13.05	20.11
F	Arabis spp.	a-	a-	b11	-	-	4	-	.02
F	Aster spp.	-	4	-	-	2	-	.01	-
F	Astragalus spp.	3	-	2	1	-	1	-	.03
F	Castilleja spp.	-	-	4	-	-	2	-	.03
F	Cymopterus spp.	-	3	-	-	2	-	.01	-
F	Erigeron eatonii	27	29	15	12	13	8	.29	.09
F	Eriogonum umbellatum	-	3	2	-	1	1	.03	.03
F	Gayophytum ramosissimum (a)	-	b12	a-	-	5	-	.02	-
F	Hedysarum boreale	-	2	-	-	1	-	.03	-
F	Hymenoxys acaulis	14	8	10	8	4	6	.02	.05
F	Hymenoxys richardsonii	-	-	6	-	-	2	-	.01
F	Lappula occidentalis (a)	-	b19	a5	-	10	4	.05	.02
F	Lesquerella kingii	a2	a4	b19	1	2	8	.01	.06
F	Medicago sativa	b49	a9	a19	19	5	8	.90	.96
F	Orthocarpus spp. (a)	3	-	-	3	-	-	-	-
F	Penstemon spp.	a-	b9	a1	-	3	1	.01	.00
F	Phlox longifolia	a-	b10	b9	-	4	6	.02	.05
F	Polygonum douglasii (a)	-	7	1	-	2	1	.01	.00
F	Schoencrambe linifolia	b15	a3	a-	7	1	-	.00	-
F	Sphaeralcea coccinea	3	7	7	2	4	4	.33	.07
F	Tragopogon dubius	b3	a-	a-	3	-	-	-	-
F	Unknown forb-perennial	1	-	-	1	-	-	-	-
Total for Annual Forbs		3	38	6	3	17	5	0.08	0.02
Total for Perennial Forbs		117	91	105	54	42	51	1.68	1.44
Total for Forbs		120	129	111	57	59	56	1.77	1.46

Values with different subscript letters are significantly different at % = 0.10

BROWSE TRENDS --
Herd unit 15 , Study no: 7

T y p e	Species	Strip Frequency		Average Cover %	
		'94	'99	'94	'99
B	Amelanchier utahensis	9	6	1.11	1.01
B	Artemisia nova	41	54	3.51	6.68
B	Artemisia tridentata vaseyana	3	0	.38	-
B	Cercocarpus montanus	9	11	1.62	1.25
B	Chrysothamnus depressus	4	10	.15	.03
B	Chrysothamnus nauseosus graveolens	2	3	.00	.00
B	Chrysothamnus viscidiflorus	4	5	.03	.00
B	Eriogonum microthecum	0	0	-	-
B	Gutierrezia sarothrae	14	12	.38	.21
B	Juniperus osteosperma	0	5	1.25	2.00
B	Opuntia spp.	2	1	.00	-
B	Pinus edulis	0	6	4.11	6.48
B	Purshia tridentata	1	1	.15	.00
B	Quercus gambelii	0	1	-	-
B	Ribes spp.	0	1	-	.03
B	Sclerocactus	0	1	-	.03
B	Symphoricarpos oreophilus	2	2	.16	.03
Total for Browse		91	119	12.90	17.80

CANOPY COVER --
Herd unit 15 , Study no: 7

Species	Percent Cover '99
Amelanchier utahensis	.20
Cercocarpus montanus	.40
Juniperus osteosperma	1
Pinus edulis	7

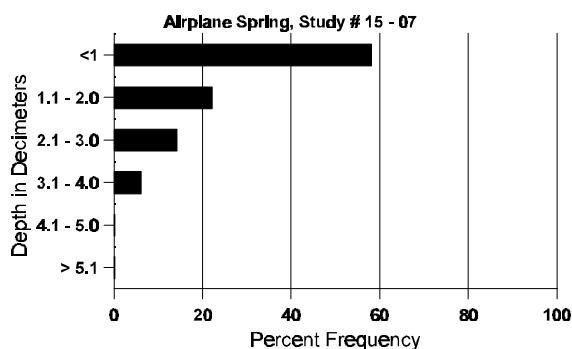
BASIC COVER --
Herd unit 15 , Study no: 7

Cover Type	Nested Frequency		Average Cover %		
	'87	'94	'87	'94	'99
Vegetation	306	304	6.50	28.12	37.69
Rock	305	288	19.50	22.58	28.07
Pavement	273	248	4.25	2.94	9.41
Litter	380	358	57.50	33.31	28.98
Cryptogams	21	18	.50	.18	.25
Bare Ground	290	248	11.75	11.27	12.93

SOIL ANALYSIS DATA --
Herd Unit 15, Study # 07, Study Name: Airplane Spring

Effective rooting depth (inches)	Temp °F (depth)	pH	%sand	%silt	%clay	%OM	PPM P	PPM K	dS/m
11.2	50.4 (13.2)	7.0	44.0	27.4	28.6	5.2	17.7	156.8	0.7

Stoniness Index



PELLET GROUP DATA --
Herd unit 15 , Study no: 7

Type	Quadrat Frequency		Pellet Transect Days Use/Acre (ha)
	04	09	
Rabbit	18	61	N/A
Deer	8	12	4 (10)
Cattle	-	5	20 (49)
Buffalo	-	1	1 (2)

BROWSE CHARACTERISTICS --

Herd unit 15 , Study no: 7

A G R E	Y	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.	Total
		1	2	3	4	5	6	7	8	9	1	2	3	4			
<i>Amelanchier utahensis</i>																	
S	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	94	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	99	1	-	-	-	-	-	-	-	-	1	-	-	-	20		1
Y	87	-	-	1	-	-	-	-	-	-	1	-	-	-	33		1
	94	1	-	-	-	-	-	-	-	-	1	-	-	-	20		1
	99	-	1	-	-	-	-	-	-	-	1	-	-	-	20		1
M	87	-	-	4	-	-	-	-	-	-	4	-	-	-	133	33 22	4
	94	5	3	-	-	-	1	-	-	-	9	-	-	-	180	46 58	9
	99	6	3	-	-	-	1	-	-	-	10	-	-	-	200	57 56	10
D	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	94	1	-	-	-	-	-	-	-	-	-	-	-	1	20		1
	99	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
% Plants Showing			<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>					
	'87			00%			100%			00%					+25%		
	'94			27%			09%			09%					+ 0%		
	'99			36%			09%			00%							
Total Plants/Acre (excluding Dead & Seedlings)												'87	166	Dec:	0%		
												'94	220		9%		
												'99	220		0%		
<i>Artemesia nova</i>																	
S	87	121	-	-	-	-	-	-	-	-	121	-	-	-	4033		121
	94	170	-	-	-	-	-	-	-	-	169	-	1	-	3400		170
	99	272	-	-	-	-	-	-	-	-	272	-	-	-	5440		272
Y	87	30	1	1	-	-	-	-	-	-	32	-	-	-	1066		32
	94	35	-	-	-	-	-	-	-	-	33	-	2	-	700		35
	99	85	3	1	-	-	-	-	-	-	89	-	-	-	1780		89
M	87	14	3	-	-	-	-	-	-	-	17	-	-	-	566	14 21	17
	94	113	-	-	6	-	-	-	-	-	94	-	25	-	2380	11 17	119
	99	100	24	16	-	-	-	-	-	-	140	-	-	-	2800	11 22	140
D	87	1	-	-	-	-	-	-	-	-	-	-	-	1	33		1
	94	21	-	-	1	-	-	-	-	-	17	-	2	3	440		22
	99	9	4	4	2	6	1	-	-	-	25	-	-	1	520		26
X	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	94	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	99	-	-	-	-	-	-	-	-	-	-	-	-	-	100		5
% Plants Showing			<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>					
	'87			08%			02%			02%					+53%		
	'94			00%			00%			18%					+31%		
	'99			15%			09%			.39%							
Total Plants/Acre (excluding Dead & Seedlings)												'87	1665	Dec:	2%		
												'94	3520		13%		
												'99	5100		10%		

A G R E	Y	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.	Total
		1	2	3	4	5	6	7	8	9	1	2	3	4			
Artemesia tridentata vaseyana																	
S	87	4	-	-	-	-	-	-	-	-	4	-	-	-	133		4
	94	14	-	-	1	-	-	-	-	-	15	-	-	-	300		15
	99	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
Y	87	3	-	-	-	-	-	-	-	-	3	-	-	-	100		3
	94	1	-	-	-	-	-	-	-	-	1	-	-	-	20		1
	99	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
M	87	1	-	-	-	-	-	-	-	-	1	-	-	-	33	17 13	1
	94	2	-	-	-	-	-	-	-	-	2	-	-	-	40	16 26	2
	99	-	-	-	-	-	-	-	-	-	-	-	-	-	0	18 33	0
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>				<u>%Change</u>					
	'87	00%			00%			00%				-55%					
	'94	00%			00%			00%									
	'99	00%			00%			00%									
Total Plants/Acre (excluding Dead & Seedlings)												'87	133	Dec:	-		
												'94	60		-		
												'99	0		-		
Cercocarpus montanus																	
Y	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	94	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	99	4	-	-	-	-	-	-	-	-	4	-	-	-	80		4
M	87	-	1	1	-	-	-	-	-	-	2	-	-	-	66	21 30	2
	94	2	2	3	1	-	1	-	-	-	9	-	-	-	180	31 28	9
	99	4	1	3	-	-	4	-	-	-	12	-	-	-	240	42 38	12
D	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	94	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	99	-	-	-	-	-	1	-	-	-	1	-	-	-	20		1
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>				<u>%Change</u>					
	'87	50%			50%			00%				+63%					
	'94	22%			44%			00%				+47%					
	'99	06%			47%			00%									
Total Plants/Acre (excluding Dead & Seedlings)												'87	66	Dec:	0%		
												'94	180		0%		
												'99	340		6%		

A G R E	Y	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.	Total
		1	2	3	4	5	6	7	8	9	1	2	3	4			
Chrysanthemus depressus																	
S	87	-	1	-	-	-	-	-	-	-	1	-	-	-	33		1
	94	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	99	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
Y	87	-	11	-	-	-	-	-	-	-	11	-	-	-	366		11
	94	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	99	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
M	87	1	-	-	-	-	-	-	-	-	1	-	-	-	33	4 10	1
	94	4	-	-	1	-	-	-	-	-	5	-	-	-	100	6 14	5
	99	2	5	1	-	-	2	-	-	-	10	-	-	-	200	3 6	10
D	87	1	-	-	-	-	-	-	-	-	1	-	-	-	33		1
	94	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	99	-	-	3	-	-	1	-	-	-	3	-	-	1	80		4
% Plants Showing			<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>					
	'87																-77%
	'94																+64%
	'99																
Total Plants/Acre (excluding Dead & Seedlings)												'87	432	Dec:	8%		
												'94	100		0%		
												'99	280		29%		
Chrysanthemus nauseosus graveolens																	
S	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	94	2	-	-	-	-	-	-	-	-	2	-	-	-	40		2
	99	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
M	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0	- -	0
	94	-	1	1	-	-	-	-	-	-	1	-	1	-	40	20 28	2
	99	3	-	-	-	-	-	-	-	-	3	-	-	-	60	26 30	3
X	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	94	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	99	-	-	-	-	-	-	-	-	-	-	-	-	-	20		1
% Plants Showing			<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>					
	'87																
	'94																+33%
	'99																
Total Plants/Acre (excluding Dead & Seedlings)												'87	0	Dec:	-		
												'94	40		-		
												'99	60		-		

A G R E	Y	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.	Total
		1	2	3	4	5	6	7	8	9	1	2	3	4			
Chrysothamnus viscidiflorus																	
Y	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	94	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	99	2	-	-	-	-	-	-	-	-	2	-	-	-	40		2
M	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0
	94	7	-	-	-	-	-	-	-	-	7	-	-	-	140	3	7
	99	4	-	-	-	-	-	-	-	-	4	-	-	-	80	9	4
D	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	94	2	-	-	-	-	-	-	-	-	2	-	-	-	40		2
	99	1	-	-	-	-	-	-	-	-	1	-	-	-	20		1
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>				<u>%Change</u>					
	'87	00%			00%			00%									
	'94	00%			00%			00%				-22%					
	'99	00%			00%			00%									
Total Plants/Acre (excluding Dead & Seedlings)										'87	0	Dec:	0%				
										'94	180		22%				
										'99	140		14%				
Eriogonum microthecum																	
M	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0
	94	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0
	99	-	-	-	-	-	-	-	-	-	-	-	-	-	0	5	13
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>				<u>%Change</u>					
	'87	00%			00%			00%									
	'94	00%			00%			00%									
	'99	00%			00%			00%									
Total Plants/Acre (excluding Dead & Seedlings)										'87	0	Dec:	-				
										'94	0		-				
										'99	0		-				

A G E	Y	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.	Total
		1	2	3	4	5	6	7	8	9	1	2	3	4			
Gutierrezia sarothrae																	
S	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	94	5	-	-	-	-	-	-	-	-	5	-	-	-	100		5
	99	13	-	-	-	-	-	-	-	-	13	-	-	-	260		13
Y	87	25	-	-	-	-	-	-	-	-	25	-	-	-	833		25
	94	10	-	-	-	-	-	-	-	-	10	-	-	-	200		10
	99	24	-	-	-	-	-	-	-	-	24	-	-	-	480		24
M	87	17	-	-	-	-	-	-	-	-	17	-	-	-	566	10 8	17
	94	20	-	-	-	-	-	-	-	-	20	-	-	-	400	6 7	20
	99	24	-	-	-	-	-	-	-	-	24	-	-	-	480	6 8	24
D	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	94	3	-	-	-	-	-	-	-	-	-	-	-	-	60		3
	99	2	-	-	-	-	-	-	-	-	1	-	-	-	40		2
X	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	94	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	99	-	-	-	-	-	-	-	-	-	-	-	-	-	60		3
% Plants Showing		<u>Moderate Use</u>		<u>Heavy Use</u>		<u>Poor Vigor</u>				<u>%Change</u>							
	'87	00%		00%		00%				-53%							
	'94	00%		00%		09%				+34%							
	'99	00%		00%		02%											
Total Plants/Acre (excluding Dead & Seedlings)										'87	1399	Dec:	0%				
										'94	660		9%				
										'99	1000		4%				
Juniperus osteosperma																	
S	87	1	-	-	-	-	-	-	-	1	-	-	-	33		1	
	94	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	99	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
Y	87	3	-	-	-	-	-	-	-	3	-	-	-	100		3	
	94	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	99	4	-	-	-	-	-	-	-	4	-	-	-	80		4	
M	87	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	94	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	99	-	-	-	-	-	-	-	1	-	1	-	-	20		1	
X	87	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	94	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	99	-	-	-	-	-	-	-	-	-	-	-	-	40		2	
% Plants Showing		<u>Moderate Use</u>		<u>Heavy Use</u>		<u>Poor Vigor</u>				<u>%Change</u>							
	'87	00%		00%		00%											
	'94	00%		00%		00%											
	'99	00%		00%		00%											
Total Plants/Acre (excluding Dead & Seedlings)										'87	100	Dec:	-				
										'94	0		-				
										'99	100		-				

A G R E	Y	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.	Total											
		1	2	3	4	5	6	7	8	9	1	2	3	4														
Opuntia spp.																												
Y	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0											
	94	1	-	-	-	-	-	-	-	-	1	-	-	-	20	1	1											
	99	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0											
M	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0											
	94	1	-	-	-	-	-	-	-	-	1	-	-	-	20	0	1											
	99	1	-	-	-	-	-	-	-	-	1	-	-	-	20	4	1											
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>				<u>%Change</u>																
'87		00%			00%			00%				-50%																
'94		00%			00%			00%																				
'99		00%			00%			00%																				
Total Plants/Acre (excluding Dead & Seedlings)												'87	0	Dec:	-													
												'94	40		-													
												'99	20		-													
Pinus edulis																												
Y	87	3	-	-	-	-	-	-	-	-	3	-	-	-	100		3											
	94	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0											
	99	1	-	-	-	-	-	-	-	-	1	-	-	-	20	1	1											
M	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0											
	94	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0											
	99	7	-	-	-	-	-	-	-	-	7	-	-	-	140	-	7											
X	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0											
	94	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0											
	99	-	-	-	-	-	-	-	-	-	-	-	-	-	20		1											
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>				<u>%Change</u>																
'87		00%			00%			00%				-50%																
'94		00%			00%			00%																				
'99		00%			00%			00%																				
Total Plants/Acre (excluding Dead & Seedlings)												'87	100	Dec:	-													
												'94	0		-													
												'99	160		-													
Purshia tridentata																												
M	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0											
	94	-	-	-	-	-	-	-	-	-	-	-	-	-	0	6	0											
	99	-	-	-	-	-	1	-	-	-	1	-	-	-	20	74	1											
D	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0											
	94	-	-	1	-	-	-	-	-	-	1	-	-	-	20		1											
	99	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0											
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>				<u>%Change</u>																
'87		00%			00%			00%				+ 0%																
'94		00%			100%			00%																				
'99		00%			100%			00%																				
Total Plants/Acre (excluding Dead & Seedlings)												'87	0	Dec:	0%													
												'94	20		100%													
												'99	20		0%													

A G R E	Y	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.	Total									
		1	2	3	4	5	6	7	8	9	1	2	3	4												
Quercus gambelii																										
S	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0									
	94	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0									
	99	6	-	-	-	-	-	-	-	-	6	-	-	-	120		6									
Y	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0									
	94	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0									
	99	4	-	-	-	-	-	-	-	-	4	-	-	-	80		4									
M	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0									
	94	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0									
	99	3	-	-	-	-	-	-	-	-	3	-	-	-	60	18 22	3									
D	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0									
	94	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0									
	99	1	-	-	-	-	-	-	-	-	1	-	-	-	20		1									
X	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0									
	94	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0									
	99	-	-	-	-	-	-	-	-	-	-	-	-	-	20		1									
% Plants Showing			<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>														
'87			00%			00%			00%																	
'94			00%			00%			00%																	
'99			00%			00%			00%																	
Total Plants/Acre (excluding Dead & Seedlings)												'87	0	Dec:	0%											
												'94	0		0%											
												'99	160		13%											
Ribes spp.																										
M	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0									
	94	-	-	-	-	-	-	-	-	-	-	-	-	-	0	60 96	0									
	99	-	-	-	-	-	-	-	-	-	1	-	1	-	20	64 67	1									
% Plants Showing			<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>														
'87			00%			00%			00%																	
'94			00%			00%			00%																	
'99			00%			00%			00%																	
Total Plants/Acre (excluding Dead & Seedlings)												'87	0	Dec:	-											
												'94	0		-											
												'99	20		-											
Sclerocactus																										
M	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0									
	94	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0									
	99	1	-	-	-	-	-	-	-	-	1	-	1	-	20	3 3	1									
% Plants Showing			<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>														
'87			00%			00%			00%																	
'94			00%			00%			00%																	
'99			00%			00%			00%																	
Total Plants/Acre (excluding Dead & Seedlings)												'87	0	Dec:	-											
												'94	0		-											
												'99	20		-											

A G E	Y	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.	Total									
		1	2	3	4	5	6	7	8	9	1	2	3	4												
Symphoricarpos oreophilus																										
S	87	2	-	-	-	-	-	-	-	-	2	-	-	-	66		2									
	94	2	-	-	-	-	-	-	-	-	2	-	-	-	40		2									
	99	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0									
Y	87	5	3	1	-	-	-	-	-	-	9	-	-	-	300		9									
	94	1	-	-	-	-	-	-	-	-	1	-	-	-	20		1									
	99	1	-	-	-	-	-	-	-	-	1	-	-	-	20		1									
M	87	-	1	6	-	-	-	-	-	-	7	-	-	-	233	21 20	7									
	94	-	1	-	-	-	-	-	-	-	1	-	-	-	20	10 21	1									
	99	1	-	-	-	-	-	-	-	-	1	-	-	-	20	28 66	1									
D	87	-	-	1	-	-	-	-	-	-	1	-	-	-	33		1									
	94	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0									
	99	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0									
% Plants Showing			<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>														
'87			24%			47%			00%			-93%														
'94			50%			00%			00%			+ 0%														
'99			00%			00%			00%																	
Total Plants/Acre (excluding Dead & Seedlings)												'87	566	Dec:	6%											
												'94	40		0%											
												'99	40		0%											